

Motivating Environmental Action

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California State University

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Workshop prepared for the California Water Board Academy and the Environmental Protection Agency (Region 9). Address correspondences to: Wesley Schultz, Department of Psychology, California State University, San Marcos, CA, 92078. wschultz@csusm.edu. (760) 750-8045.

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Workshop Overview

<u>Day 1</u>	FOUNDATIONS
9 – 10	Common Practice
10-12	Psychology of Behavior Change
1-2	Community-Based Social Marketing
2- 3	Examples of Behavior Change Programs
3 - 5	Discussion and take home lessons

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Workshop Overview

<u>Day 2</u>	APPLICATION
9 – 10	Examples of Behavior Change Programs
10 - 12	Behavior selection
1 - 2	Barriers to behavior
2- 3	Tools of change
3 - 4	Discussion and closing remarks

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About the Presenter

- Wesley Schultz
- Ph.D. in applied social psychology
- Academic position (professor)
- Books (5), Publications (>50 peer reviewed articles), news media
- Numerous consulting, writing, and marketing projects
 - **Private and NGO:** Southern California Edison (energy), PepsiCo, Brookfield Zoo, Keep America Beautiful, OPOWER, CBRE
 - **State:** California Integrated Waste Management Board (used oil recycling, waste tires), TN, FL, TX
 - **Local and County:** Napa, Madera, Los Angeles, San Diego
 - Cities of San Diego, Vista, San Marcos, Escondido
 - **Federal:** National Academy of Sciences, Environmental Protection Agency (EPA), Department of Justice, U.S. Air Force, National Institutes of Health
 - **International:** United Nations, London Zoological Society, WWF

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Goals of the Workshop

After participating in this workshop, you should:

1. Be able to identify the elements of a persuasive appeal.
2. Be able to select an effective tool of behavior change.
3. Have a basic understanding of how to design, implement, and evaluate (?), a behavior change intervention

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Conservation Means Behavior

- Conservation
- Efficiency
- Health
- Safety
- Environmental protection





A Little Psychology

- Scientific study of behavior
- People act for reasons
- Successful programs require behavior change
- Many examples of failed (or not tested) and even boomerang effects

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So You Want to Change Behavior?

- **Information campaigns (education campaigns)**
 - Media messages intended to inform people about a behavior, program, or problem.
- **Awareness campaigns**
 - Media messages intended to convey to people the severity of a specific problem or issue.

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The Information Campaign

- People don't act because they don't know
 - Ubiquitous model
1. Knowledge will correlate with behavior.
 2. Educational efforts will lead to an increase in knowledge.
 3. Increasing knowledge will cause a change in behavior.

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EPA
Environmental Protection Agency
EPA 841-F-03-003

Protecting Water Quality from URBAN RUNOFF

Clean Water Is Everybody's Business

In urban and suburban areas, much of the land surface is covered by buildings and pavement, which do not allow rain and snowmelt to soak into the ground. Instead, most developed areas send rainwater to storm sewers or other ways of runoff from roofs and paved areas to nearby waterways. This increases runoff volume and carries with it oil, dirt, chemicals, and even bacteria directly to streams and rivers, where they seriously harm water quality. To protect water quality and groundwater resources, development should be designed and built to minimize increases in runoff.

How Urbanized Areas Affect Water Quality
Increased Runoff

The porous and varied textures of natural landscapes like forests, wetlands, and grasslands soak up rainwater and snowmelt and allow them to filter slowly into the ground. In contrast, impervious (nonporous) surfaces like roofs, parking lots, and walkways prevent rain and snowmelt from infiltrating, or soaking, into the ground. More of the rainfall and snowmelt remains above the surface, where it runs off rapidly in increasingly large amounts. Storm sewers replace connections made by the forests, wetlands, and grasslands. This runoff picks up dirt and chemical pollutants and carries them into streams, lakes, and rivers. This runoff also carries with it debris, trash, and even bacteria, which can harm the health and reproduction of aquatic life.

The most recent National Water Quality Inventory reports that runoff from urbanized areas is the leading source of water quality impairments to surveyed streams and the third largest source of impairments to surveyed lakes.

Did you know that houses of impervious surfaces like pavement and rooftops, a typical city block generates more than 15 times as much runoff as a wooded area of the same size?

The loss of infiltration from urbanization may also cause profound groundwater changes. Although urbanization leads to great increases in flooding during and immediately after wet weather, in many instances it results in lower stream flows during dry weather. Many cities take and other aquatic life cannot survive when stream flows are low.

Increased Pollutant Loads

Urbanization increases the variety and amount of pollutants carried into streams, rivers, and lakes. The pollutants include:

- Sediment
- Oil, grease, and toxic chemicals from motor vehicles
- Pesticides and nutrients from lawns and gardens
- Fumes, bacteria, and nutrients from pet waste and aging septic systems
- Road salts
- Heavy metals from use of dioxins, motor vehicles, and other sources
- Thermal pollution from dark, impervious surfaces such as streets and rooftops

These pollutants can harm fish and wildlife populations, kill native vegetation, and drinking water supplies, and make recreational areas unattractive and unpleasant.

Relationship between impervious cover and surface runoff: Impervious cover in a watershed can result in increased surface runoff. As little as 10 percent impervious cover in a watershed can result in stream degradation.

[Protecting Water Quality from Urban Runoff](#) [PDF Format] - This fact sheet explains how urbanized areas affect water quality through increased runoff and pollutant loads and what homeowners can do to prevent stormwater pollution. EPA 841-F-03-003.

Yard & Garden Care

Keeping Your Yard & Garden Beautiful and our Waterways Clean



What is urban runoff and storm water pollution, and what is the difference between them? Urban runoff is the water that flows off our yards, streets, parking lots, and driveways into the storm drains and eventually into our creeks, lagoons and the ocean during the dry season. Whether it is from sprinkler over spray, car washing or hosing down the driveway, everyone is a potential contributor to urban runoff. Whereas storm water pollution occurs during the rainy season, with runoff picking up pollutants from our streets and gutters that flows directly into our local waterways. In either case, whether by rain or by every day activities, the water flows into the storm drains picking up pollutants like soil, motor oil, pesticides, fertilizers, pet wastes, and litter. All these contaminants end up in our waterways. Many people mistakenly think that the water entering our storm drains is cleaned or treated in some way. **The storm drain system and sewer system are separate.** Our storm drain system channels water, untreated, directly into our creeks, lagoons and the ocean. If our runoff water and storm water is contaminated, it will cause beach closures and postings. Urban runoff is a major source of water pollution. **Acting Water Wise Helps Keep Our Waterways Clean. Prevent Storm Water Pollution and Urban Runoff.**

HOW CAN GARDENING HURT OUR WATERWAYS?

Caring for your garden and landscape on property that is miles from the ocean may seem to have little to do with creek and water pollution, but many gardening activities can be quite detrimental to water quality. Normal landscaping and garden maintenance activities can be major contributors to storm drain pollution. Soil, yard wastes, lawn mowing, and garden chemicals become part of the urban runoff mix that winds its way through streets, gutters and storm drains before entering our creeks, lagoons and ultimately the ocean.

❖ Nutrients from fertilizers, such as phosphorus and nitrogen, promote algae blooms and excessive plant growth. Algae depletes oxygen making it unavailable to fish and other aquatic life. Algae blooms and excessive plants limit much needed sunlight.

❖ Pesticides and herbicides don't just kill garden pests, they also harm beneficial insects, aquatic plants and fish that live in our waterways.

❖ Yard waste such as lawn mow and grass are pollutants in our waterways because during decomposition they absorb oxygen needed by fish and aquatic animals.

❖ Sediments and suspended solids slow down the flow of fish and blocking sunlight, affecting photosynthesis of aquatic plants and phytoplankton.

YOU CAN HELP
Whether you can only do part time or contract a professional service, you can play an important role in reducing stormwater pollution, protecting water quality and conserving our valuable water and natural resources. By implementing the simple solutions in this fact sheet, you can take part in protecting our local waterways and our beaches.

URBAN RUNOFF FACT & FICTION

Fact: Runoff from streets and storm drains is treated at wastewater treatment plants.

Fact: Storm drain runoff in San Diego County is not treated and goes directly into our creeks - what goes into the storm drain ends up at the beach. That's why it is important to insure pollutants such as oil, antifreeze, automotive fluids, fertilizers, pesticides, yard wastes, and litter do not end up in the gutters and storm drains.

Fiction: Industrial sources pose a much greater pollution threat than urban runoff discharges.

Fact: Urban runoff flows in our creeks discharges from factories and sewage plants as a source of pollution. The most common non-point source of urban runoff pollution comes from local residents.

Fiction: Most of the harm is done by a few people.

Fact: Although an individual household might contribute only a minor amount of pollution, the combined effects of a neighborhood or city is serious.



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HOW CAN GARDENING HURT OUR WATERWAYS?

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DON'T BE A DIPSTICK!

Don't Save It. Recycle It When You Buy New Oil!

Call 1-800-287-9013 or go to
www.tdec.net/dca/oil.htm
for your nearest
Oil Collection Center.

The information contained in this pamphlet is based on current laws and best management practices. Recommendations may change over time as new laws and information are developed. Contact the Division of Community Assistance if you have questions.

**DIVISION OF COMMUNITY ASSISTANCE
TENNESSEE DEPARTMENT OF
ENVIRONMENT & CONSERVATION**

8th Floor, L&C Tower
401 Church Street
Nashville, TN 37243-1551
1-800-287-9013

The Tennessee Department of Environment and Conservation is committed to principles of equal opportunity, equal access and affirmative action. Contact the EEO/AA Coordinator or the ADA Coordinator at 1-888-867-2757 for further information. Hearing impaired callers may use the Tennessee Relay Service at 1-800-848-0298.

Tennessee Department of Environment and Conservation, Authorization No. 327972, 20,000 copies. This public document was promulgated at a cost of \$38 per copy, June 2002.

Don't Know What To Do With Used Motor Oil?

Tennessee do-it-yourselfers generate more than one million gallons of used motor oil each year.

Unless it is disposed of properly, used motor oil can interfere with sewer systems and easily get into Tennessee's groundwater and streams, and it doesn't take much. A single gallon of used oil can contaminate one million gallons of drinking water.

Worse yet, it's estimated that up to 60 percent of the used motor oil generated by Tennessee do-it-yourselfers will end up in our waters.

The Tennessee Used Oil Collection Act of 1993, which was enacted to prevent the mismanagement of used oil, makes it unlawful (except under strictly specified conditions of a valid permit) for any person to discharge used oil where it may harm the environment. Violation of this law is a Class C misdemeanor (T.C.A. 68-211-1016).

HERE'S HOW EASY IT IS.

- Simply put your used oil in a clean plastic container with a tight lid.
- Don't mix it with anything else – paint, gasoline, solvents, antifreeze, etc. This will make the oil unsuitable for recycling.
- Take the used oil to a service station or other location that collects oil for recycling. Used oil collection centers will accept up to 5 gallons a day from do-it-yourselfers.

By providing this information, the Department of Environment and Conservation does not endorse any oil collection center or imply that any location is in compliance with state and federal regulations.

WHAT ABOUT OIL FILTERS?

- If you change your oil filter, drain the old one by punching an air hole in the top and draining a minimum of 12 hours if the filter is hot, or 24 hours if it is cold.
- Dispose of the oil filter only after it is properly drained.
- Check to see if there is a filter crushing and recycling program in your community.

NOTE: Commercial handlers of used oil and oil filters may be subject to more stringent requirements than those specified for do-it-yourselfers.

ILLEGAL DISPOSAL PRACTICES INCLUDE:

- POURING USED OIL DOWN A DRAIN
- POURING USED OIL INTO A STORM SEWER
- TOSSING USED OIL ON YOUR DRIVEWAY, STREET, OR THE GROUND
- DISPOSING OF OIL IN LAKES, STREAMS, OR WETLANDS
- SPREADING OIL TO SUPPRESS DUST OR KILL WEEDS
- BURNING OIL OUTDOORS
- MIXING USED OIL WITH OTHER SUBSTANCES



Used Oil Recycling 101

We love to drive. To the supermarket, to the mall, to the post office, to school, to see friends, to get a pizza, to our job, to our vacation at the beach or mountains and to a million places in between. We get in the car, buckle up and hit the road every day.

There are many responsibilities related to that privilege. Safety, for example. Car crashes are the No. 1 killer of teenagers. Buckle up. Slow down. Be careful out there.

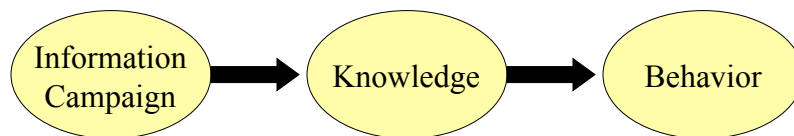
Another responsibility often forgotten is the environmental impact of driving. Cars and trucks, for example, release pollutants into the air. Cars and trucks use enormous

Why recycle oil?

- Recycling used motor oil protects human health and the environment. Recycling used motor oil keeps it from contaminating soil, keeps it out of rivers, lakes, streams and groundwater, and keeps it away from the beach, aquatic life and wildlife. The potential harm that improperly disposed of used oil may cause is staggering. One gallon of used motor oil improperly disposed of may contaminate 1 million gallons of fresh water – enough to supply 50 people with drinking water for one year. One pint of used motor oil



The Information Campaign





The Information Campaign

1. Knowledge will correlate with behavior.
+ TRUE
2. Educational efforts will cause an increase in knowledge.
+ TRUE
3. Increasing knowledge will cause a change in behavior.
+ FALSE

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Knowledge-Deficit Model

- Knowledge-deficit model ignores the motives for behavior.
- People engage in behaviors for reasons, and knowing more is not a reason for action
 - Perceived benefits (positive)
 - Personal inconvenience (negative)
 - External pressure (positive)
 - Financial motives (positive)

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Knowledge-Deficit Model (caveat)

- Knowledge is not a motive for behavior.
- Lack of knowledge can be a barrier.
- Educational interventions can be effective in three situations:
 - 1.
 - 2.
 - 3.

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Knowledge-Deficit Model

- Why is it so widely used?
 - 1.
 - 2.
 - 3.
 - 4.

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Awareness Campaigns

- Highlight the seriousness of the problem by giving incidence rates
- “Look at this big problem”
- Public policy
 - Traffic, crime, hazardous waste, littering, steroid use among adolescents, eating disorders, tax evasion, mass transit, and many others
- Seen as a key ingredient to gaining funding for programs
 - Required by many grant applications, politicians, and funders

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Promotion and raising awareness of environmentally sustainable food production methods and socially responsible food marketing practices

Increasing the use of safe, environmentally sustainable local food

- Encourage caterers to use locally grown produce wherever possible
- Require use of organic food wherever possible
- Ensure menu planning is linked to seasonal produce
- Through the catering specification eliminate unnecessary and potentially harmful food additives such as bovine growth hormones, irradiation, and genetically modified foods

Public policy and school campaigns

- Aim to ensure maximum uptake of meals and that all pupils entitled to a free meal receive one. This may be done through parental information / communication, meals promotions and procedures to protect identity of free meal claimants. Have we developed a method of monitoring uptake?
- Maximise the reduction of waste by recycling, reusing, composting and purchasing recycled products. Include the school caterers in the project.
- Does the school want to advocate or stimulate debate on food issues e.g.
 - label disclosure?
 - organic farming targets?
 - advertising regulations for companies targeting children?

Methods include letters to members of parliament, debates, petitions, inviting speakers into school, pupils' question time.

Grab 5

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© Sustain: the alliance for better food and farming 2005

Of all Americans who change their own oil, only 10% of them dispose of their waste oil in the proper manner. Recycle used oil.

In College Station, an estimated 200,000 gallons of used oil are dumped improperly down the sewers, in empty lots, in holes in the ground, on weeds, and in landfills. All by people who change their own oil. Used oil and oil filters are banned from the landfill and dumping is illegal. Recycling is the only legal method of disposal.

A single quart of oil will foul the taste of 250,000 gallons of water. And as little as one pint of used oil can create an acre-sized slick on surface water. Oil kills the floating organisms in fresh water that feed fish, and it kills aquatic life.

We cannot afford to have our drinking water contaminated. Every one of us has to share the responsibility for transforming used oil from a liability into a major asset.

Don't Forget:

*You can make a difference!
If you change your own oil,
don't dump it. Recycle it!*

**You
can make a
difference!
If you change
your own oil,
don't dump
it.**

Recycle it!

For more information contact:

City of College Station
Public Works Department
2613 Texas Avenue
College Station, Texas 77842
(979) 764-3690



**Don't
Dump
It.**



**Recycle Used Oil
and
Oil Filters.**

*Give Your Dirty Oil and
Oil Filter A Fresh Start!*

Printed on recycled content paper.

dirty secrets

48% of Tennesseans polled say that they have *knowingly* thrown trash on the street.

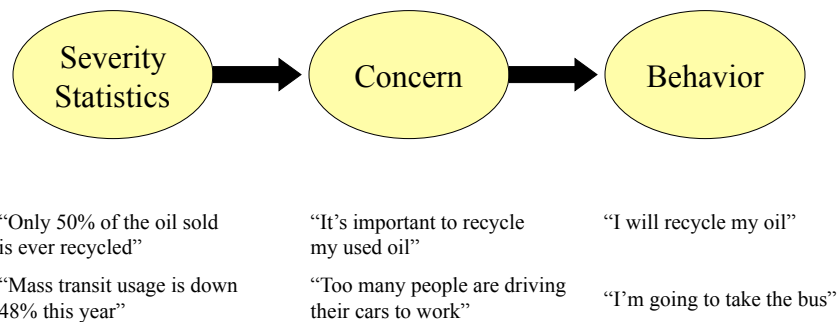
About 1 in 5 people say they do this on a *regular* basis.

[Click here for survey results.](#)

Tennessee's Had Enough. Have You?



The Awareness Campaign



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Awareness Campaigns

- Can produce a boomerang effect for individual behavior
- 1. Normative beliefs are correlated with behavior ($r=.44$)
- 2. Normative beliefs can be changed by providing information (printed media, television, radio, in-person)
- 3. Changing normative beliefs **causes** a change in behavior

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Normative Social Influence

Social norms--an individual's beliefs about the common and accepted behavior in a specific situation.

1. Formed through social interaction
2. Powerful influence on behavior
3. Most powerful in novel situations
4. Types of norms (injunctive and descriptive)

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Social Validation

- Gawking (Milgram, Bickman, & Berkowitz, 1969)
 - N=1 (4%)
 - N=5 (18%)
 - N=15 (40%)--stopping traffic!
- Seeing others not act (Latane & Darley, 1968)
 - Smoke study
- Tip jars empty versus full

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Social Validation

- Which one attracts more tips?

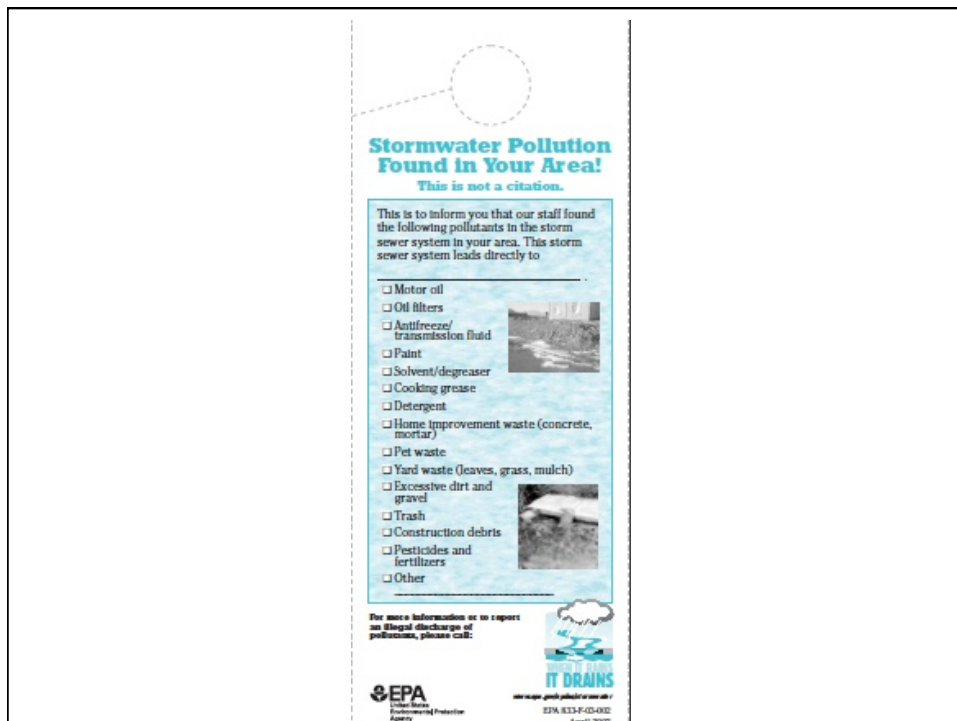


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Common Practice

- Information campaigns tend to produce small effects.
- Awareness campaigns can produce boomerang effects
- Both are common practice in behavior change program across the nation
- There are alternatives

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City of Lakewood, Colorado
www.lakewood.org

Search

City Services For Residents Visitors Business

Monday, October 06, 2008

ONLINE SERVICES: Click for eMaps, Cultural Center Tickets, Class Registration, Crime Reporting, Job Applications & More

HOW MUCH DO YOU KNOW ABOUT STORMWATER POLLUTION?

The following questionnaire is provided for you to self-test your knowledge of storm water pollution and encourage you to be part of the solution! (The statistics below were developed based on studies in other areas.)

1. Approximately how many residents pour something into the gutter or down a storm drain each month?

- A. Less than 3,500 residents each month
- B. Between 12,500 and 17,500 residents each month
- C. More than 25,000 residents each month

Answer: 12,500-17,500 residents

Solution: Recycle all hazardous waste including used motor oil, antifreeze and radiator fluid, paints, pesticides and household cleaners. Don't dump them into the storm drain -it's illegal. Call 303-316-6262 to learn how to dispose of household hazardous materials properly at the City-sponsored Rooney Road Recycling Center ([map](#)).



2. How many cigarette butts would you guess residents drop on the ground each month?

- A. Less than 7,500 butts per month
- B. Between 35,000 and 45,000 butts per month
- C. More than 90,000 butts per month

Answer: 90,000 butts per month

Solution: Throw cigarette butts in an ashtray or trashcan, not the ground. When cigarette butts are dropped on the ground, they end up in the storm drain system. When it rains, cigarette butts flow into the streams and rivers, making area waterways a gigantic ashtray and killing aquatic life.

5. How many times each month would you guess residents over water their lawns or gardens and let the water run into the street?

- A. Less than 2,500 times each month
- B. Between 10,000 and 15,000 times each month.
- C. More than 35,000 times each month.

Answer: More than 35,000 times each month

Solution: Never apply pesticides and fertilizers when you expect precipitation. You will not only lose the fertilizer or pesticide, but in heavy rain may also be harming the environment. Excessive use of fungicides, insecticides and fertilizers, and improper landscaping practices contribute to storm water pollution because the toxic chemicals cause health risks for people and kill aquatic life.

